

U.S. NAVAL BASE, PEARL HARBOR, SIGNAL TOWER  
(U.S. Naval Base, Pearl Harbor, Naval Station)  
(Building No. S1058)  
Corner of 7th Street and Avenue "D", east of Drydock No. 1  
Pearl Harbor  
Honolulu County  
Hawaii

HAER No. HI-23

HAER  
HI  
2-PEHA,  
80-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
Western Region  
Department of the Interior  
San Francisco, California 94107

HISTORIC AMERICAN ENGINEERING RECORD

U.S. Naval Base, Pearl Harbor, Signal Tower  
(U.S. Naval Base, Pearl Harbor, Naval Station)  
(Building No. S1058)

HAER  
HI  
2-PEHA,  
80-

HAER No. HI-23

Location: Corner of 7th Street and Avenue "D", East of Drydock #1  
Pearl Harbor  
Honolulu County  
Hawaii

USGS Pearl Harbor Quadrangle, Hawaii  
7.5 minute series (orthophotoquad)  
Universal Transverse Mercator coordinates  
4.608120.2361760 (scale - 1:24,000)

Date of Construction: 1925

Present Owner: Naval Station, Pearl Harbor, Hawaii

Present Use: Harbor control operations

Significance: The U.S. Naval Base at Pearl Harbor was designated as a National Historic Landmark in 1964. The Signal Tower, classified as a Category 1 structure, is a 69 year old facility located within the Pearl Harbor National Historic Landmark. As a Category 1 structure, it has been determined that the Signal Tower constituted a prominent element of the Landmark and has played a major role in the operation of the Pearl Harbor Naval Base.

Report Prepared By: Julie Muraoka, Civil Engineer  
Navy Public Works Center, Pearl Harbor  
Project Development Branch  
Pearl Harbor, Hawaii 96860-5470

Date: October 1994

## I. DESCRIPTION

The Signal Tower, Building No. S1058, is a permanent, steel framed free standing tower approximately 200 feet high, which supports a 40 foot diameter water tank, control tower office, and omni antenna at the top of the structure. The overall condition of the Signal Tower is currently substandard due to its age and deterioration from the elements. The water tank and signal mast are painted in a checkerboard pattern with alternate bands of aviation orange and white in accordance to Federal Aviation Administration (FAA) standards. The tank supporting structure and elevator shaft are painted white with an orange band at the top of the elevator shaft.

The foundation of the tower consists of eight concrete footings under steel columns, placed in a circular position with an approximate diameter of 63 feet. The steel frame of the tower consists of eight columns and a center pipe, with various horizontal struts and crossbracing connections. Most structural members were fabricated from channel plates, gusset plates and rod bracing. The capacity of the water tank at the top of the tower is 380,000 gallons. The control tower office located at the top of the tower consists of an octagonal wooden shelter house with searchlight platforms on the roof of the house, and a telescopic steel mast, approximately 50 feet high, at the top of the tower. The original shelter house included a metal framed roof, drop type windows, and an exterior wooden platform, 8 feet in width, extending around the shelter house. In 1957, a new control tower office was built with metal framed roof, aluminum sheathing siding, asphalt tile floor and acoustical tile ceiling interior, and aluminum framed pivoting windows with tinted thermal glass.

An adjacent elevator shaft provides the primary means of egress to the control tower office. The elevator shaft is approximately 160 feet high and enclosed with corrugated metal siding. Alternate means of egress include an exterior metal stairway which extends from the ground up to the control tower office, and a vertical ladder with cage that is attached on the exterior of the elevator shaft. The metal stairway spirals around and is attached to the tower columns. The stairway includes five landings between ground and top level. The stairway has greatly deteriorated due to age and the elements, and is currently not in use.

## II. HISTORICAL INFORMATION

The Signal Tower was constructed in 1925 at a total cost of \$192,544. The Signal Tower was constructed to serve as a harbor control tower to provide an observation deck for monitoring ship movement in Pearl Harbor waterways. The 380,000 gallon water tank, steel tower and metal stairway were fabricated by Pittsburgh-Des Moines Steel Company in 1925.

In 1940 the elevator shaft was added to the signal tower, extending up to balcony of the water tank, located approximately at mid-level of the water tank. Access to the control tower office was provided by the exterior metal stairway.

In 1944 a new searchlight platform was added to the roof of the signal tower office.

In 1956 internal tank bracing was added to the water tank.

In 1957 a new control tower was built, the signal mast at the top of the tower was replaced, and the elevator shaft was extended up to the level of the control tower office. Additional internal bracing was added to the water tank.

On December 7, 1941, Navy personnel stationed at the Signal Tower identified and confirmed the enemy air attack by Japanese warplanes in the bombing of Pearl Harbor. The signal tower remains in use for harbor control operations, and is in continual operation 24 hours a day. The water tank at the top of the tower is no longer in use.

### III. SOURCES

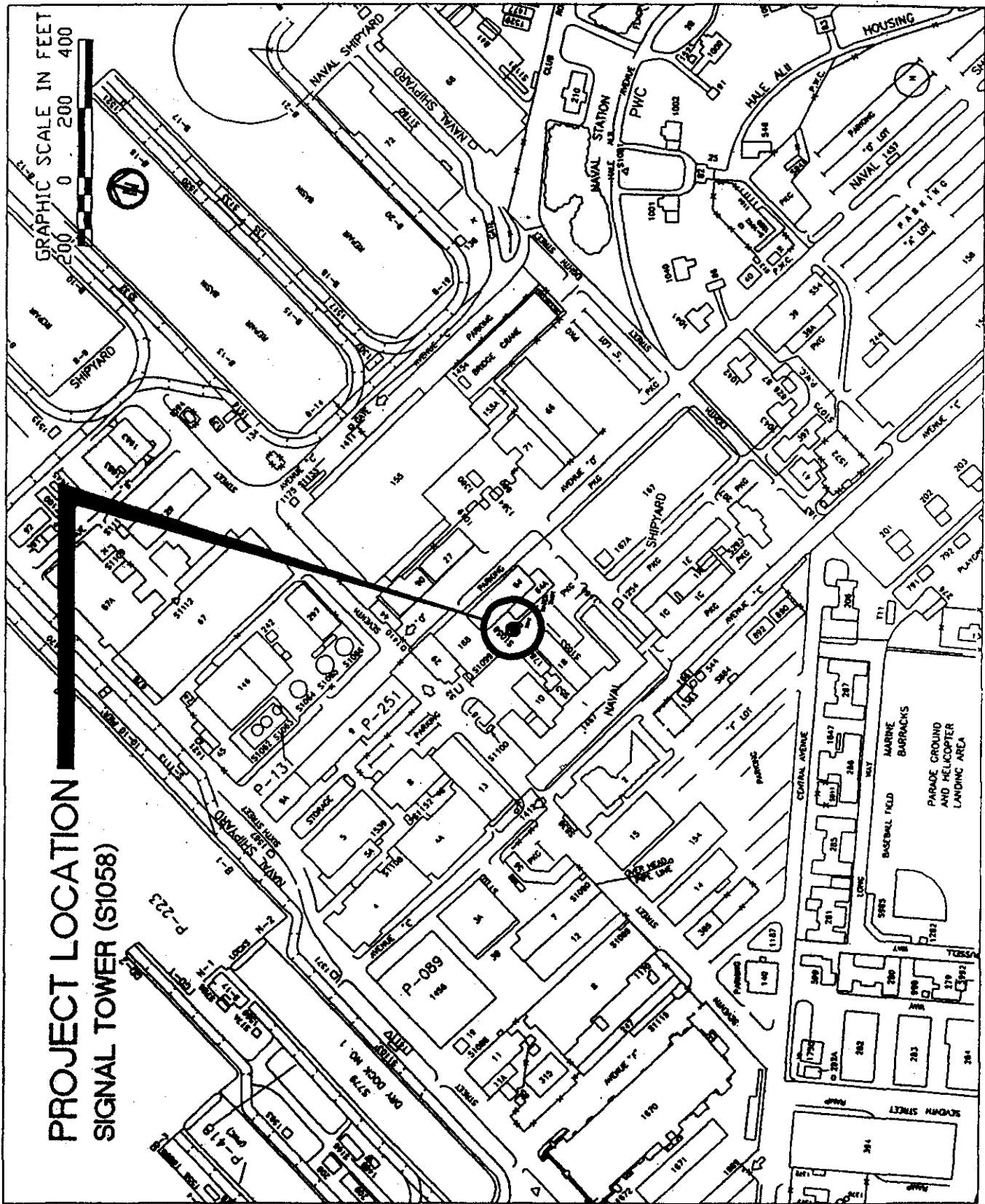
NAVFAC P-164, Detailed Inventory of Naval Shore Facilities.

PACNAVFACENGCOM Drawing No. 1092 through 1096 dated 10/24; O-128 dated 2/25; O-134, O-140 dated 10/25; 1097 through 1100 dated 12/40; 751419 dated 8/57; 751424-25 dated 9/57.

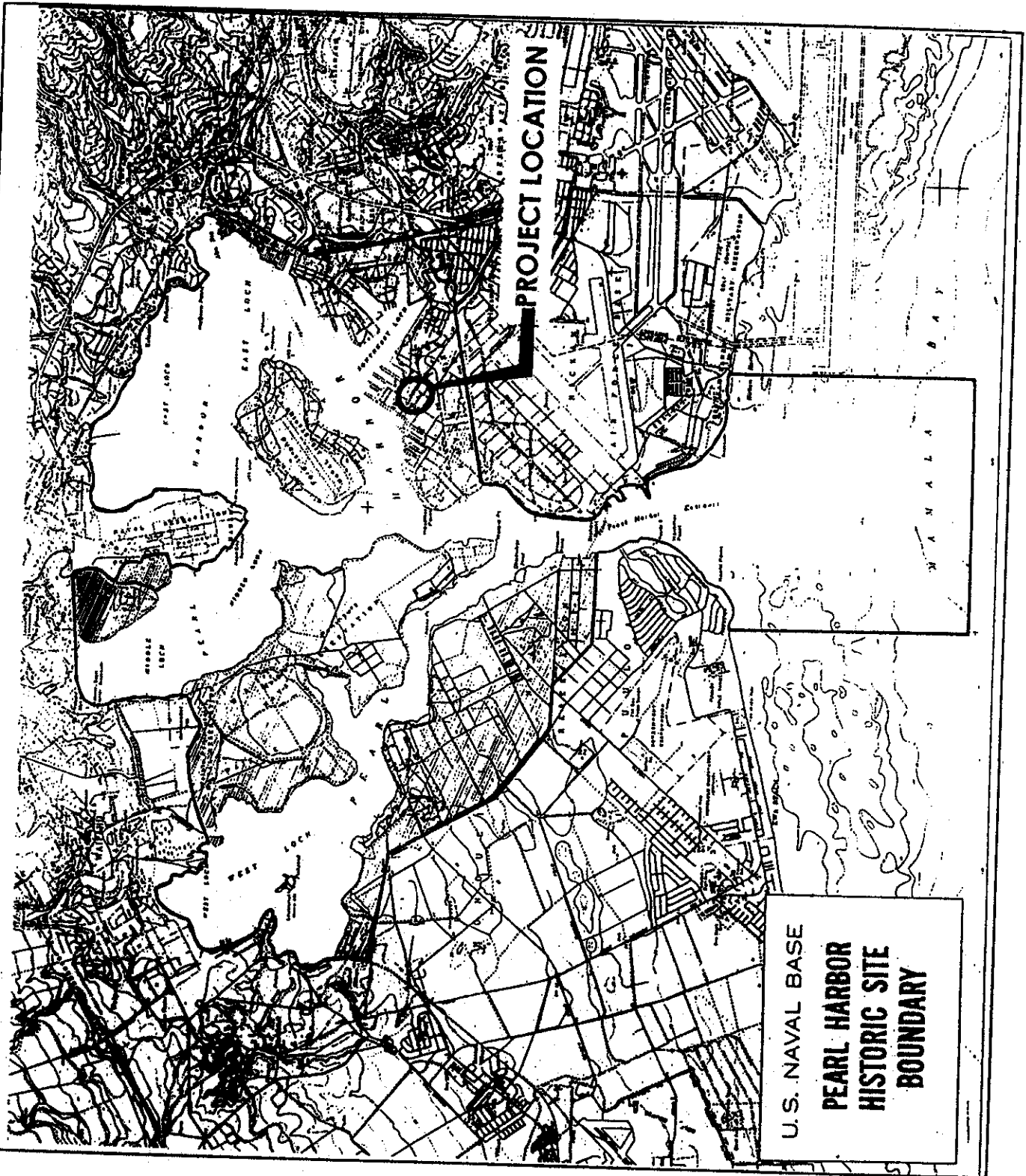
Public Works Center Drawing No. 7469350 dated 2/86.

U.S. Naval Base, Pearl Harbor, National Historic Landmark, Historic Preservation Plan.

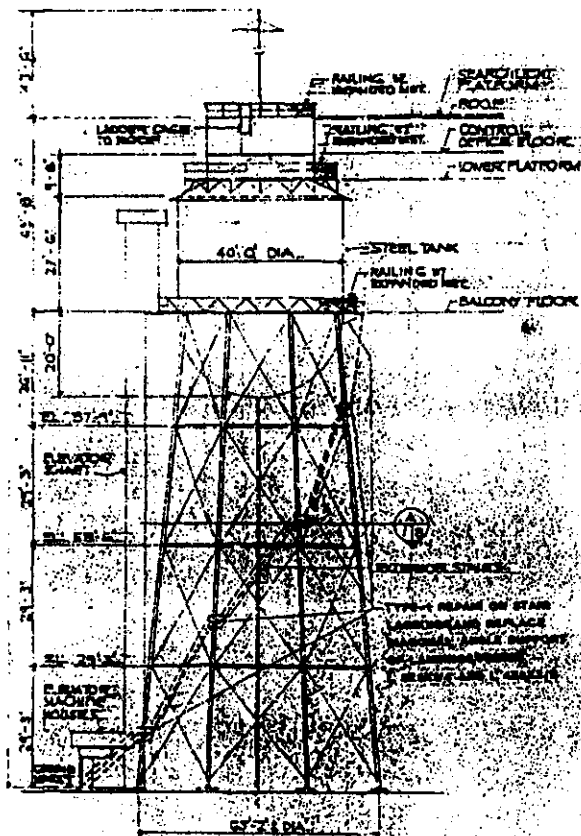
Wallin, Homer N. Vice Admiral, "Pearl Harbor: Why, How, Fleet Salvage and Final Appraisal," U.S. Government Printing Office, 1968.



U.S. Naval Base, Pearl Harbor, Signal Tower  
(U.S. Naval Base, Pearl Harbor, Naval Station)  
(Building No. S1058)  
HAER No. HI-23 (Page 5)

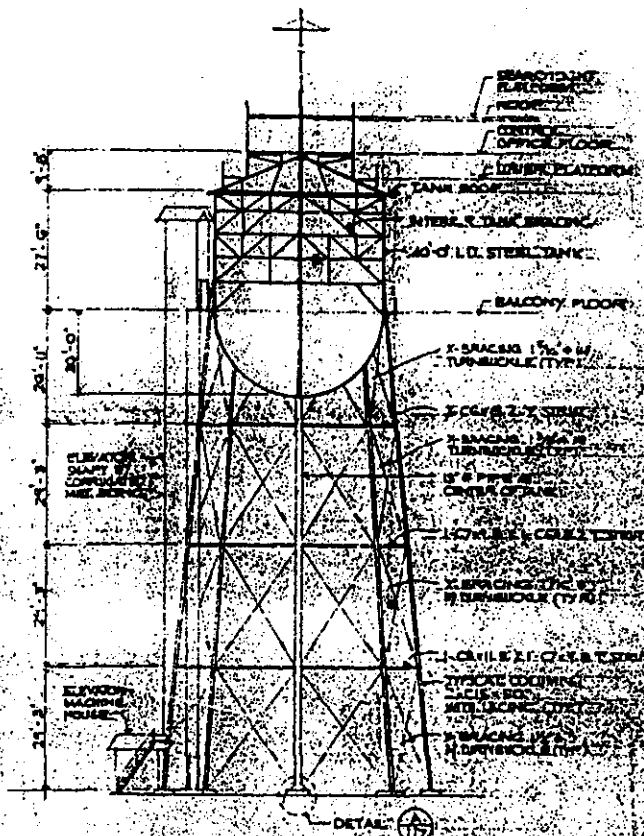


(Original drawing No. 7469350 available on microfiche at Navy Public Works Center, Pearl Harbor, Hawaii)



## TOWER ELEVATION

SCALE: YNG-140



**TOWER SECTION ALONG LINES ⑥ / ⑤**

SCALE 1/5-1/50

## INDEX TO DRAWINGS

COLLAR	WATER OVERLAP	WATER ATTACHED
1	7441100	7441100
2	7441100	7441100
3	7441100	7441100
4	7441100	7441100
5	7441100	7441100
6	7441100	7441100
7	7441100	7441100
8	7441100	7441100
9	7441100	7441100
10	7441100	7441100

## AS BUILT

[illegible]